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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/743,933	02/14/2001	Ian Bottomley	CM1831LM/KL	9058

7590 02/19/2002

P M Ulrich
The Procter & Gamble Company
Beckett Ridge Technical Center
8611 Beckett Road Room E125
Winchester, OH 45069

EXAMINER

ZANELLI, MICHAEL J

ART UNIT	PAPER NUMBER
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3661

DATE MAILED: 02/19/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/743,933

Applicant(s)

BOTTOMLEY ET AL.

Examiner

Michael J. Zanelli

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 February 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 February 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☐ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☒ Other: *list of copending appls.*

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DETAILED ACTION

1. This application has been examined. The preliminary amendment filed 2/14/01 has been entered. Claims 1-11 are pending.
2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.
3. Acknowledgement is made of the receipt of IDS filed 7/3/01. If applicant wishes these references as well as the references cited in the foreign search report to be considered and cited on the issued patent, then a PTO-1449 must be submitted. 37 CFR 1.98
4. The disclosure is objected to because of the following informalities:
 - A. Headings should be inserted to identify various portions of the specification.
 - B. On page 4, line 4; page 7, line 5; page 9, line 1; and page 17, para. 5 a symbol of a hand is used. It is unclear what this symbol represents (degrees?).
 - C. Page 11 describes low level behaviors 101-105, but fails to include "Random" (114).

Appropriate correction is required.

5. The drawings are objected to because no elements "1" and "2" shown in Fig. 1 (see page 6, last line). Also the numeral "12" has been used multiple times to indicate different elements. In Fig. 2, no connection shown between dispense system and rest of the control system. Page 12 states that "105" receives input from "104", but is not shown in Fig.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

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6. Claims 2, 4, 6 and 9-11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

A. As per claim 2, the claim is unclear as to what the hand symbol means at line 4. Also the claim is indefinite because of the use of the alternative "and/or". The examiner suggests using the phrase "at least one of ... and ...".

B. As per claim 4, note comments above regarding use of the alternative "and/or".

C. As per claim 6, "the ... product dispensing control signals" lack antecedence. Claim 1 recites terms such as "depositing a fluent material" and "depositing mechanism". Also the claim is unclear as to whether the terms "manifold" and "bus" are equivalent. Use of the alternative "or" is appropriate only if the terms are equivalent.

D. As per claim 9, the claim fails to clearly recite steps which comprise a method. The claim appears to merely define an intended use or environment of the invention.

E. As per claim 10, the claim is indefinite because of the multiple use of the alternative "or". It is unclear whether all or only one of the listed materials define the scope of the claim.

F. All claims depending from a rejected base claim are also rejected as containing the same deficiencies.

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1, 3 and 4 are rejected under 35 U.S.C. 102(b) as being anticipated by DE 35 36 974 A1 (hereinafter DE).

A. As per claim 1, DE discloses a self-propelled cleaning robot (see Abs.) which moves along a surface to be treated. As shown in Fig. 3a, the robot includes traction mechanism (11',12'; 11,12) powered from a power source (not explicitly shown, but would have been inherently required to operate the robot); mechanism for depositing cleaning solution on surface to be treated (col. 5, lines 17-27); navigation sensors (4,4';23,23'); detectors for detecting fluent on the surface to be treated (23,23'); and a control system (Fig. 1a:3).

B. As per claim 3, detectors (23,23') detect the fluent which was previously deposited on the surface (Fig. 3a).

C. As per claim 4, detectors (23,23') are at least comprised of moisture sensors.

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point

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out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

11. Claims 2 and 9-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over DE in view of Kawakami et al. (5,613,261).

A. As per claims 9-11, as can best be interpreted from the claim language recited, the robot includes deposition rate-controlling. Although DE deposits cleaning solution on the surface, no details regarding rate control are provided. However, the solution would have been applied in a specified quantity as the robot moved otherwise the solution would spill across the entire surface and result in waste. Kawakami discloses a robot for cleaning floors in which the rate of cleaning solution dispensed would depend on how dirty the floor was (col. 3, lines 22+). One of ordinary skill in the art would have found it obvious to control the rate of deposit based on the condition of the surface to be treated as well as reduce waste as much as possible. With regards to using markers, DE suggests using a colored fluent to distinguish the applied solution (col. 5, lines 17+).

B. As per claim 2, DE is applied as above. DE includes safety switches (4,4') in aiding in navigation and preventing collisions. The claimed invention differs only in the arrangement of collision sensors around the robot. However, the arrangement of the collision sensors around the robot would have been a function of the geometry of the robot and the degree of collision protection desired. One of ordinary skill in the art

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would have found it obvious to take these design features into consideration in arranging the collision sensors.

12. Claims 5-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over DE in view of Sekiguchi et al. (publ.).

A. As per claims 5-8, DE is applied as above. Claims 5-8 address the processing architecture of the control system, in particular the use of neural networks to perform hierarchical instructions. At the time of applicant's invention it was known in the robotic arts to use multi-hierarchical neural networks to control the functions of the robot. Sekiguchi is an exemplary teaching of how such networks are used to process input information (i.e., sensors) and to adapt the operation of the robot to its environment. One of ordinary skill in the art would have found it obvious to apply the teachings of Sekiguchi to the robot of DE because it would have provided a control structure in which the robot could readily adapt its operation to its changing environment.

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The cited patents represent the general state of the art.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael J. Zanelli whose telephone number is (703) 305-9756.

The examiner can normally be reached on Monday-Thursday 5:30 AM - 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William A. Cuchlinski can be reached on (703) 308-3873. The fax phone numbers

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for the organization where this application or proceeding is assigned are (703) 305-7687 for regular communications and (703) 305-7687 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1113.

/mjz

February 12, 2002


MICHAEL J. ZANELLI
PRIMARY EXAMINER